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Research indicates the existence of a relationship between the level of visual perceptual skills in the first grade and academic success in later grades. Special visual-motor training was given to some 275 primary school children with a like number of children acting as a control group. The control group was one grade ahead of the experimental group. Testing at the end of the first year of this study showed the control group scoring significantly higher on academic tests than the experimental group, this result being expected because of the extra year of formal education received by the control group. Test results after the second year showed no significant differences between the two groups, but the experimental group children appeared to have the faster growth rate. At the end of 3 years, testing again resulted in no significant differences between the two groups. Slower children seemed to have benefited from the special training, whereas the other children generally had not. (WD)

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A STUDY IN VISUAL-MOTOR-PERCEPTUAL TRAINING IN FIRST GRADE

By

The Monmouth County Office of Education Staff

Earl B. Garrison
County Superintendent

PS001944

Acknowledgements

This study would not have been possible without the support of so many people that to thank all by name would be an impossible task. However, we do wish to thank all the teachers from all the schools who gave so willingly of their time and effort and surmounted the anxieties and pressures that came with the delay in starting formal instruction. We also wish to express our appreciation to the Administrators and Boards of Education for their continued cooperation and support these past two years. Our thanks and appreciation are also extended to the State Department of Education for their valuable suggestions and criticism and for their financial support without which this study would not have been possible. And last but not least, the County Superintendent of Schools, who provided the leadership and encouragement that such a study requires.

INDEX

Interim Report

Part I

Background 1

Part II

Purpose of the Study 2

Part III

Procedures 3

Part IV

Findings 5

Part V

Summary 11

Part VI

Implications 12

Final Report

Part I

Background 14

Part II

Procedures 15

Part III

Findings 15

Part IV

Summary and Implications 17

Bibliography 19

Appendix 20

INTERIM REPORT

At the inception of this study, Monmouth County had enrolled in its schools 83,000 students in 54 school districts. The growth rate in the county is exceeding six thousand a year so that direct service to individuals did not seem to be the most feasible approach.

The county staff at this time consisted of nine people. It had been the subject of several staff meetings as to how we could best use the resources and time of the staff to be of the utmost value to the schools and the children in our schools. In-service training programs were already a part of the staff's responsibilities as well as consultative services.

The one area that seemed dormant at the time was the area of research and demonstration. It was felt that such a program would have the widest impact with the limited staff, time, and resources available. Accordingly, areas of possible research became a primary concern of the staff and possible topics and problems were explored.

Part I

Background of Study

In January of 1962 Monmouth County employed a psychologist as the first member of the Child Study Team as authorized by the Beadleston legislation of 1959. One of the functions of the psychologist is to stimulate and provide leadership in the area of research.

In the spring of 1962 a county helping teacher reported at one of the staff meetings on some research that was being conducted by the Lions Club in Winter Haven, Florida and might have application for our schools in New Jersey. She further reported that she had used some of these techniques with individual students in the local schools and had had considerable success. She further stated that she felt many students in our county could benefit from this training but that there was no method by which it could be introduced.

After considerable discussion at several subsequent staff meetings, it was proposed that it might be possible to do some research in some of our selected local school districts if we could enlist their cooperation and obtain the necessary funds for such a program. It was agreed that the psychologist should draw up a proposal with a research design for review by the staff (see appendix A). After review of the proposal by members of the central staff of the State Department and the entire county staff, the County Superintendent obtained a grant of $1,000 to proceed with the study in accordance with the proposal. Each county staff member further agreed to help in whatever way he could with the project. The helping teacher went to Winter Haven to attend a workshop and obtain the additional information needed to carry on the proposed project.

Representatives of several school districts were invited to the county office to see if they would be interested in such a proposal for

their students. From this group three districts were selected.

1. Millstone Township
2. Wall Township
3. Fair Haven

A subsequent meeting with the Wall Township Board of Education resulted in a modification of the original selection of school districts and a doubling in the numbers of students involved in the control and experimental population. The Wall Township Board felt that if this were a good program for some of their students it would be a good program for all of their students. The staff agreed that this change would not violate the characteristics of a cross-section of the Monmouth County population which we were seeking. The final schools selected for the program were:

Allenwood (Wall Township)
Clarksburg (Millstone Township)
Wall Central (Wall Township)
West Belmar (Wall Township)

This represented twelve classes and approximately 275 students in each group (control and experimental). The Wall Township Board agreed to pay all expenses involved for the additional students, but this did not prove to be necessary.

In October of 1962 the second member of the Child Study Team, a remedial instructor, joined our staff. It was agreed that the increased population would necessitate a sharing of responsibilities. While the helping teacher was nominally in charge of the total program, the remedial instructor would share responsibilities with her when work started in the local schools. Accordingly, one would be the consultant in the Allenwood and West Belmar Schools; and the other would serve in the Clarksburg and Wall Central Schools.

It was planned to complete the Child Study Team with the addition of the school social worker and the consulting psychiatrist by September, 1963. Unfortunately we were unable to obtain the personnel in these two disciplines until the fall of 1964 which was the second year of the program.

Part II

This study had two major purposes:

(1) To ascertain if all children would benefit from visual-motor-perceptual training as outlined in the Winter Haven program. It was agreed that this program would in no way supplant any existing program, but would only supplement existing programs.

(2) To demonstrate to local school districts how a Child Study Team would function. At the inception of this study only one of the fifty-four school districts in the county employed all the disciplines authorized in the Beadleston legislation of 1959. Neither of the school districts in this study employed services except on an occasional fee basis. The services of the county staff would be employed primarily with the experimental group.

Two hypotheses were then set up to be tested.

1. Children who had visual-motor training would do better academically at the end of two years than those who had not.

2. Certain children in the experimental group could be helped by members of the Child Study Team.

Part III

Procedures: Two populations were chosen for this experiment and in so choosing certain assumptions were made:

(1) That while teachers were variable in the program both the control and experimental group would be exposed to the same variables and therefore this could be regarded as a constant.

(2) The population of the control and experimental group would have the same characteristics. They would be matched in terms of similar socio-economic background, similar intelligence, similar educational philosophies in the particular schools selected and similar size.

The control group consisted of approximately 275 boys and girls in grade one divided into twelve classes. They were just completing first grade. The experimental group consisted of the same number of children who were just coming into first grade. Both groups had had kindergarten experience.

To test the first hypothesis the following standardized tests and procedures were employed to assess the achievement levels of the two groups.

	Control	Experimental
Kindergarten - Metropolitan Readiness Test	1962	1963
First Grade - Gates Reading Test California Achievement Tests	1963	1964
Second Grade - California Achievement Tests	1964	1965-June

The Metropolitan Readiness Tests were administered by the kindergarten teachers in the respective schools to ascertain if the populations were approximately equal in terms of readiness.

The Gates Primary Reading Tests were administered at the end of first grade to both the control and experimental groups as an independent and diagnostic test of reading.

The California Achievement Tests (Lower Primary Level) were administered to both groups at the end of first and second grades in order to determine achievement in areas other than reading, to assess the growth rates in each successive year, and to obtain a measure of the relationship of total achievement to the readiness scores in the two year interval.

It was agreed that no change would be made in the formalized reading programs already in existence in the schools.

It was estimated that approximately ten to fifteen percent of the population would be referred by the teachers for health, learning, or

behavior problems. A referral sheet, adapted from the Plainfield Child Study Team, was prepared for teacher use. A revised referral sheet was employed the second year. (See Appendix C and D)

The itemized budget for tests and materials is shown in Appendix B.

Upon completion of the preparatory arrangements and the administration of the Readiness Tests by the kindergarten teachers, the full involvement of the county staff started. (August, 1963)

Arrangements were made with the participating districts to have the teachers of the experimental first grades attend a week long workshop in August under the direction of the county staff. A list of those attending the workshop is given in Appendix E.

As a first step of this training program, we discussed the research sponsored by the Winter Haven Lions Club, which resulted in a program of perceptual training (5) (3) (7). This and other pieces of research seem to indicate a relationship between the level of visual perceptual skills in the first grade and academic success in later grades, also that the development of perceptual skills is related to better coordination of the body parts. Based upon these premises the Winter Haven program strives to improve body balance, posture, bi-laterality, directionality, fine and gross motor coordination and to develop and train visual-motor skills and meaningful vision.

The program considers the whole child and uses an all-sensory approach. Many of the Winter Haven techniques are based on the works of Montessori, Gesell, Kephart, and Getman. The purpose of the program is to give all children success in school.

The training techniques were grouped under four general topics for the purposes of discussion and demonstration during the workshop.

First, learning about children through standardized and informal testing, observing and listening. A list of the tests used is given in Appendix F.

Second, gross motor training using rhythmic activities, the walk board, jump board, balance board and chalkboard exercises (motor equivalence and space organization). For a description of these activities see (10) (1) (8).

Third, fine motor training using chalkboard and desk templates. For training procedures see (7) (10).

Fourth, concept building, the development of a common vocabulary and good listening habits through observing, expressing and experiencing. Discussion centered around such activities as trips, planned experiences, experience charts, listening to stories and music, correlation of art and the development of auditory and visual discrimination and memory skills. (10)

County staff members met with parent groups in each of the four schools to explain the study, the philosophy of the program, what we hoped to accomplish and describe some of the training procedures. It was especially important to have parents understand that although formalized reading instruction would be delayed until the completion of this training, the existing reading programs would not be altered.

During the first year the helping teacher and remedial instructor spent half a day a week with each of their six classes, working with children, helping teachers with the use of various training techniques and administering the informal tests. Results of these tests were recorded on the Test and Observation sheet (Appendix G). The perceptual form test was administered before and after training. This test requires the child to copy seven geometric forms. (Appendix H) The directions for administering it and the norms for scoring are in the "Procedure Guide to Perceptual Forms" (7) and "Perceptual Forms, Teacher's Test Manual" (6).

All members of the county staff assisted with the standardized testing program.

As might be expected, all children did not complete the training at the same time. Thus, the formalized reading instruction started for some children late in November and for others in December or January.

Part IV

Findings

Standardized Tests Results

(1) At the end of the first year the following results were obtained on the Gates Primary Reading Test.

Total Reading Score:	Control Group (N=272)	Experimental Group (N=243)
Grade Level:	2.35	2.12

(2) At the end of the first year the following results were obtained on the California Achievement Test (Primary Form) 1957 Norms.*

Control Group	Experimental Group	Standard Error
Total Reading Score (N=265) 2.29	Total Reading Score (N=250) 2.01	.2
Total Arithmetic Score (N=276) 2.37	Total Arithmetic Score (N=235) 2.33	.2
Total Language Score (N=266) 2.44	Total Language Score (N=241) 2.10	.3
Total Battery (N=256) 2.36	Total Battery (N=234) 2.16	

* The 1957 Norms for the California Achievement Test were used throughout this study since the 1963 norms were not available at the inception of this study.

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It is interesting to note that at the end of the first year the control group had significantly higher scores in reading on both the Gates and California tests in excess of two months progress. This held true for both the Language Score as well as the Total Battery. The only score in which there was no significant difference was in the Arithmetic section.

It should be noted that for the children in the first grade control groups formal reading and language instruction began in September, while in the experimental groups formal instruction did not begin till late November and for some children not until December or January.

In an analysis of the test scores of the control group at the end of the first grade the following were obtained when the population was divided by sex on the California Achievement Test results.

	N = 265 Reading Vocabulary	Reading Comprehension
Boys Grade Level	2.3	1.95
Girls Grade Level	2.8	2.22
Standard Error of Measurement	.3	.3

	N = 276 Arithmetic Reasoning	Arithmetic Fundamentals
Boys Grade Level	2.4	2.3
Girls Grade Level	2.4	2.4
Standard Error of Measurement	.4	.3

	N = 256 Mechanics of Expression	Spelling
Boys Grade Level	2.1	2.2
Girls Grade Level	2.6	2.8
Standard Error of Measurement	.3	.4

These results indicated that the boys might benefit by a delay in instruction in reading and language if readiness were a factor.

At the end of the second year, the following results were obtained using the California Achievement Test (Lower Primary Level) 1957 norms.

	READING		ARITHMETIC		LANGUAGE		TOTAL	
	No.	Grade Level	No.	Grade Level	No.	Grade Level	No.	Grade Level
Control	271	3.55	264	3.76	269	3.94	262	3.780
Experimental	207	3.57	199	3.74	204	3.88	199	3.773
Standard Error of Measurement		.2		.2		.3		

It is to be noted that at the end of two years the experimental group had closed the gaps that existed at the end of the first year in all areas, but that these test results did not tell the whole picture.

It was felt that despite the findings that there were no significant differences between the two groups, many of the children were making more rapid gains than might be expected. To investigate this impression, the

following procedures were employed. It was decided to compare the control and experimental groups in the following areas:

Total Reading Score
Reading Comprehension
Arithmetic Fundamentals
Total Battery

Inasmuch as Reading Comprehension was deemed to be the most significant score in terms of the project, those who had perfect scores at the end of the second year were compared as to their rate of growth over their first year scores. Those students with the lowest scores in Reading Comprehension were also compared in the four areas to determine if their growth rate was also higher.

GROWTH RATE IN SELECTED SUB-TESTS OF CHILDREN IN BOTH GROUPS WITH PERFECT COMPREHENSION SCORES

	Total Reading	Comprehension	Arith. Fund.	Total Battery
Control	(58) 1.23	(58) 1.34	(58) 1.44	(53) 1.3
Experimental	(48) 1.74	(49) 1.89	(43) 1.84	(41) 1.67
Diff. in Grade Level	.51	.55	.40	.37

GROWTH RATE IN SELECTED SUB-TESTS OF CHILDREN IN BOTH GROUPS WITH SCORES OF 2.9 OR LESS ON TOTAL BATTERY SCORES

	Total Reading	Comprehension	Arith. Fund.	Total Battery
Control	(15) 0.74	(16) 0.46	(16) 0.87	(18) 0.72
Experimental	(31) 1.08	(26) 1.57	(26) 1.43	(28) 1.08
Diff.	.54	1.11	.56	.36

These findings seem to substantiate the impression that while the achievement levels at the end of the second year showed no significant difference, the rate of growth of the two populations differ sufficiently to warrant further follow-up.

In addition to the quantitative aspects of this study there were also some qualitative ones.

The teachers officially referred forty-five students. Other children were seen at the request of the team and still others who did poorly were never referred. The number referred fell within the ten to fifteen percent estimated at the start of the study. N = 265 Despite the fact that an attempt was made to choose stable communities, there was almost a twenty-five percent turnover in the population in the two years the project was conducted.

The mean I.Q. of those referred was 89.
Thirty of the forty-five children referred had mixed dominance.
Eight were found to be mentally retarded of the class of 267 (3%).
Seven were classified as slow learners.
Four had vision difficulties.
One was brain damaged.
Seven had emotional difficulties stemming from the home.
Four were KAT (kinesthetic, auditory, tactile) learners.
Two were absent excessively.

Five came from seriously deprived homes.
Two will need further study and instruction.
Five were found to be normal and progressed.
Thirty-four of the forty-five referrals were boys.

To increase our understanding of the youngsters seen by the county staff, some of the problems reported in the following "vignettes" might provide greater insight into why these youngsters had difficulties in school adjustment.

Case Studies

S. R. was referred at the age of seven by his first grade teacher because of moderate to severe behavioral problems. Referral by his second grade teacher was due to poor academic achievement. He was nervous, tense, and easily distracted. There was strong evidence of emotional blocking which was interfering with learning. A home visit verified the impression that the main difficulty was in the area of parent-child relationship. The child perceived himself as being rejected, unloved and unable to live up to parental expectations. A team conference was held with the parents regarding the dynamics and damaging aspects of their relationship to him. Classroom instruction was adjusted and realistic goals were established. Gradually his nervousness and tension diminished, his behavior improved, and academic progress was such that he was promoted to the third grade.

N. L. was seven years old when her first grade teacher referred her for psychological testing. She was shy, insecure, was easily moved to tears and found it difficult to communicate because of almost unintelligible speech. Both fine and gross motor coordination were very poor. She seemed to profit little from the Winter Haven materials and training exercises. Her teacher was sympathetic, understanding, and realistic in her expectations. As a result, N. made an effort to participate in all activities. Psychological testing indicated she was functionally retarded if not basically mentally retarded. Considerations dealt with retention in the first grade, social promotion to the second grade, or placement in a special class. A home visit revealed that the mother had tried to commit suicide because of her despair at having brought a defective child into the world. The father likewise was depressed, had suffered a heart attack, and was continuously angered at the school for not having done more to help his daughter through kindergarten and the first grade. The atmosphere at home was charged with intense feeling centered around the child's failure to speak or to read adequately. The team recommended retention in the first grade with the same teacher, supplemental speech therapy twice a week, and supplemental instruction with her classroom teacher three times a week. By the end of the year, the improvement in her speech and reading was remarkable. She was promoted to the second grade and will continue to have supplemental speech therapy and instruction. Arrangements were made for her to have a summer camp experience in order to afford her a complete and welcome change of environment.

B. B. was a good-looking but poorly groomed girl seven years seven months of age when referred to the Child Study Team because of inability to follow simple directions or to recall facts. In the classroom, she was

far behind the other children. She was repeating first grade when she entered the experimental class toward the middle of the school year. A home visit revealed an impoverished, ill-kept home of young parents and eight children ranging in age from eleven years to seven months (mother had dropped out of sixth grade to get married). Psychological testing indicated a full scale IQ of 64. She was observed to give up too readily in the face of failure. It was recognized that she was attempting to adjust to a school situation which was too much for her in every way, by ignoring it or withdrawing from it. Team recommendation was for placement in a special class for the educable retarded.

S. J., age seven, was referred because she seemed emotionally upset, showed poor retention in class, was a slow learner, and was ill-tempered with other children. After her mother abandoned her, she had been made a ward of the Bureau of Children's Services. Her present foster home was a happy one, however, and the child regarded the foster parents as her own, strongly identifying with them. A natural brother was also living in the home. A psychological examination indicated average intelligence but some evidence of disability in visual-motor skills. The child was found to be in need of glasses for myopia. Auditory perception was satisfactory. Among several recommendations were those for eye glasses, instruction on a pre-primer level, and possible benefit from template exercises as well as some reading materials for the home. Progress at the end of the year was marked. The child seemed to be working up to her potential. She was mixing well with her peers and was seemingly happy and cheerful in manner.

S. B. (eight years old) was referred early in the year by her second grade teacher because she was extremely slow in all the academic areas. She is the third of six siblings, physically small, shy and very immature. No serious illnesses were noted in the school records. She had articulation difficulties and a pattern of baby talk. Her performance on the W.I.S.C. indicated a mental age of five years ten months and a full scale IQ of 76. Educational testing revealed she could not recognize all the letters of the alphabet, had poor number concept, and would profit from readiness activities. She had crossed dominance and displayed reversal tendencies. Thus, it was necessary to adjust formal instruction considerably to meet the needs of this slow learning child. It was decided that her needs would best be met by repeating the second grade.

K. F. (eight years old) was referred by both his first and second grade teachers as having a severe speech problem which was diagnosed by the speech teacher as delayed speech development. He had had speech therapy for two years, but was still difficult to understand. He had worn corrective glasses for two years. He was babyish in appearance and manner. His teacher reported he was an isolate. He did not relate to his peers nor they to him. Performance on the W.I.S.C. indicated a full scale IQ of 85; however, the performance score was twenty-four points higher than the verbal scores. Recommendations included retention in the second grade, continuation of speech therapy and follow-up work by the local school team next year.

T.W. (eight years old) was referred by his second grade teacher because of low academic achievement. He is the tenth of twelve siblings. According to his teacher, his peer relationships were good and his dispo-

sition was happy. However, he had poor retention and work habits. School records indicate a poor attendance record; he was absent fifty days in kindergarten and thirty days in first grade; he was frequently tardy in his arrival at school. Health records indicate a slight heart condition, however, absences seemed to be generally due to oversleeping or not being ready on time for school. His background of social experiences seemed limited. His score of 96 full scale IQ on the W.I.S.C. would indicate average intelligence. Testing indicated he needed readiness activities, and that his instructional level was very early first grade. The planned instructional program included use of multi-ethnic reading materials, use of concrete aids in teaching arithmetic, and establishing goals and limits to improve work habits. By the end of the second grade year, this boy had shown improvement in all areas as indicated by scores obtained on the California Achievement Test.

	Reading Comprehension	Total Reading	Arithmetic Fundamentals	Total Battery
June, 1964	0	.6	0	.7
June, 1965	2.0	2.6	2.2	3.0

S. F. (eight years old) was referred because of a severe language problem, poor behavior patterns, and lack of academic achievement. He is the second of four siblings. Despite medication, speech therapy, and an understanding teacher, his disruptive and impulsive behavior patterns, short attention span and severe language problem made it difficult to contain him in a regular classroom. Performance on the Leiter International Performance Scale (completely non-verbal test) placed him within the normal range of intelligence. He was referred to a psychiatric clinic for further study. A complete neurological, an electroencephalogram, further psychological testing, and sessions with the parents resulted in the following recommendations: placement in a class for brain-damaged children, continued speech therapy, review of prescribed medication, and therapy sessions with the parents. He was placed in a class for the brain damaged in January and will return to the class in the fall.

Teachers' Reactions

In an attempt to evaluate the program, the first and second grade teachers of the experimental classes were asked to submit their reactions. Below is a sampling of these reactions, both pro and con.

First Grade Teachers -

"In comparison to previous classes, these children showed definite improvement earlier in skills involving comprehension and interpretation. They showed more promise in creativeness."

"A six-week concentrated approach may prove to be more effective than a three or four month period, especially following a year's kindergarten experience."

"The program enabled the teacher to identify more quickly those children who had learning problems."

"I have never taught happier children."

"Use of the 'Big Book', many experience charts, stories, activities, listening game, play acting, and 'talk-talk-talk' proved invaluable in getting 'ready'. Other years we began Before We Read the first week of school with the entire class. We struggled for responses from at least one third of the class. After the longer readiness period, there was such enthusiasm and spontaneity that the 'reading' sessions passed very quickly."

"I believe the program was too long for some children."

"Some of the activities could be used in the kindergarten."

Second Grade Teachers -

"In comparing my class this year with that of last year, I think the main thing I have noticed is the attitude of enthusiasm with which they approach things. This would especially apply to reading and language."

"In evaluating this year's second grades in relation to second grades of previous years, I have found that achievement in reading is greater. There is more interest in reading."

"Comparing the pupils who participated in the program with newcomers and previous classes, I noticed no marked increase in the rate of progress."

"These children seem to have better coordination in printing letters. They follow directions easily and are moving along faster in reading."

"At the beginning of the year, it appeared the children were far behind in reading; but as the year progressed and it came to an end, I find that most of the children have caught up in the number of reading books that should have been read by the end of second grade."

"This class seems better adjusted and works well together. The children are interested in their work and learning. The class has shown rapid development in social growth and development."

"This year the children were ready to approach smaller printing earlier in the year."

Most of these teachers felt some of the training could be included in the kindergarten, thus shortening the first grade training program to a month or six weeks.

Part V

Summary and Interpretation

Test results obtained at the end of the first year were consistent with expectations. Scores of the experimental group were significantly lower than those of the control group which had been given a longer period

of formal instruction. However, it must be noted that the second grade teachers were quite apprehensive and concerned when the experimental group started Grade Two. Thanks to their adaptability and efforts, instruction was modified to meet the needs of the children and progress was continued. With the benefit of hindsight, it might have been wiser to have had a more comprehensive orientation for the second grade teachers in terms of the project, expected levels of achievement by the end of the first year, and the need for adapting instruction.

The second year test results showed no significant differences. It had been anticipated that the experimental group would exceed the control group, but the extent of the increase was difficult to estimate. While the differences in the two groups in terms of achievement as measured by standardized tests had disappeared, it was difficult to assess the true meaning of the results. Several questions had to be raised.

(1) Are the two groups equal in achievement despite the fact that one had twenty months of formalized instruction in reading and the other only sixteen?

(2) Does the experimental group truly have a higher growth rate?

(3) Will the growth rate continue?

(4) Did the two groups reach their functional capacity at the end of the two years?

(5) Most standardized tests do not report separate norms according to sex and yet there were significant differences found in this study. Why?

It is of interest to note that 76% of the referrals were boys. Also boys outnumbered girls by a 2 to 1 ratio in both control and experimental groups of those who did poorly at the end of two years, whereas at the upper end of the scale (perfect comprehension scores) girls outnumbered boys 7 to 4.

This report has been termed "Interim" because it is planned to test at the end of the third grade to determine if we can find answers to the first four questions that our research has posed. Perhaps a table will present the questions in a clearer form.

	Control	Experimental	% of Inst. Diff.	Expected Level of Diff.	Actual Diff.	Cumulative Gains by Exp. Group
Months of Instruction	10	6	40	4 months	2 mon.	2 months
Months of Instruction	20	16	20	2 months	0	4 months
Months of Instruction	30	26	13.3	1.3 months	?	?
Months of Instruction	40	36	10.0	1 month	?	?

Part VI

Implications of the Study

While definitive implications are not as yet available in terms of the

quantitative analysis of the Motor-Visual-Perceptual Training Program, certain benefits did accrue independent of what the future testing will determine.

1. Both school districts are continuing the program with certain adaptations. Many of the gross motor activities are now being introduced in their kindergartens and continued in the first grade along with the other perceptual training activities.

2. Both school districts are initiating local team services as of the 1965-1966 school year.

3. It is the consensus of teachers and staff that the program has merit, that not all children benefit to the same degree, that some children need a much shorter training period and that the first grade training program should be limited to a month or six weeks.

FINAL REPORT

Part I

Background

The preceding Interim Report of the first two years of the study will serve as background information for this Final Report.

A summary of the results in the Interim Report would indicate that at the end of the first year there was a significant difference between the scores of the two groups (control and experimental). This was expected due to the three to four month delay of formalized reading instruction for the experimental group (see Table page 12). At the end of second grade the span between the group scores had been closed, however, there was not a significant difference (see Table page 6). Despite the fact that there wase no significant differences between the two group scores, the children in the experimental group seemed to have an accelerated growth rate. To investigate this impression the control and experimental groups were compared in the following areas:

Total Reading Score
Reading Comprehension
Arithmetic Fundamentals
Total Battery

Since Reading Comprehension was deemed to be the most significant score in terms of the project, those who had perfect scores in both the experimental and control groups at the end of the second year were compared as to their rate of growth over their first year scores. Those students with the lowest scores in Reading Comprehension were also compared in the four areas to determine if their rate of growth was also higher (see Table page 7).

These findings seemed to support the impression that the growth rate of the two groups differed sufficiently to warrant follow up.

In addition to the quantitative aspects of the study there were also some qualitative ones (page 7-11).

An attempt to assess the true meaning of the results posed several questions.

(1) Are the two groups equal in achievement despite the fact that one had twenty months of formalized instruction in reading and the other only sixteen?

(2) Does the experimental group truly have a higher growth rate?

(3) Will the growth rate continue?

(4) Did the two groups reach their functional capacity at the end of the two years?

It was planned to test at the end of the third grade in an attempt to find answers to these questions.

Both districts involved in the study have continued the use of the training techniques, both in kindergarten and first grades, and have started team services.

Part II

Procedures

The study started with approximately 275 boys and girls in twelve first grades in each group (control and experimental). By the end of third grade the number of children to be studied had decreased to 189 in the control group and 181 in the experimental group.

Inasmuch as the questions raised directed our attention to reading in particular, the California Reading Test was administered at the end of the third year.

The teachers were asked to submit reactions and observations since it was deemed desirable to assess both quantitative and qualitative aspects of the study.

Since the study was originally planned for two years and the districts now have team services, the involvement of the county team during the third year was limited to the final testing.

Part III

Findings

At the end of the third grade the following results were obtained on the California Reading Test (Upper Primary) 1957 Norms.*

Table I

	Control Group (N = 189)	Experimental Group (N = 181)	Standard Error of Measurement
Reading Vocabulary	4.9	4.93	0.4
Reading Comprehension	5.1	5.01	0.3
Total Reading	5.07	5.0	0.2

These results do not meet the criteria for a difference that is statistically significant.

To investigate the growth rate, those students who had perfect reading comprehension scores at the end of the second year were compared as to their rate of growth at the end of the third year. Those students with the lowest scores were also compared to determine if the accelerated rate of growth, noted during the second year of the study, had continued.

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* The 1957 Norms for the California Tests were used throughout this study since the 1963 Norms were not available at the inception of the study.

Table II

GROWTH RATE IN SELECTED SUB-TESTS OF CHILDREN IN BOTH GROUPS WITH PERFECT COMPREHENSION SCORES

		Total Reading	Comprehension
Control	(N = 52)	1.45	1.84
Experimental	(N = 43)	1.52	1.82
Diff. in growth rate in favor of experimental group		+.07	-.02

Table III

GROWTH RATE IN SELECTED SUB-TESTS OF CHILDREN IN BOTH GROUPS WITH SCORES OF 2.9 OR LESS ON COMPREHENSION SCORES

		Total Reading	Comprehension
Control	(N = 17)	.7	.99
Experimental	(N = 20)	1.09	1.58
Diff. in growth rate in favor of experimental group		+.39	+.59

While there appears to be little difference in the growth rate of the selected children with perfect scores, there was a four month difference in the total reading and a six month difference in comprehension for those children with the lowest comprehension scores. The significance of these findings will be discussed in Part IV of this report.

In an attempt to evaluate the qualitative aspects of the study those teachers who taught these classes for the duration of the study were asked to submit their reactions and observations regarding the two groups of children. Following is a sampling of their replies:

1. "I believe that the program is excellent; I think all children benefit in degree from precise template training. Concentration is developed and good work habits are strengthened." (first grade)

2. "I feel the program has merit, but at the latter part of the kindergarten year and for only a brief time during the early part of the first grade." (first grade)

3. "I feel the program could best be used in kindergarten. It was especially beneficial to the slower children, the shy and poorly coordinated." (first grade)

4. "More of the program should be put in the kindergarten." (first grade)

5. "The program helped to build a feeling of success and security in school work and fostered the feeling that learning is fun." (first grade)

6. "I noticed a definite improvement in the handwriting of those in the experimental group over the control group." (second grade)

7. "The experimental group approached their work with more enthusiasm and interest." (second grade)

8. "Reading is progressing at a faster rate of growth than in previous classes." (second grade)

9. "There is more enthusiasm toward academic work." (second grade)

10. "The length of the period of training should vary according to the needs of the child. Some children do not need this program at all." (second grade)

11. "Generally, I would say the control group had better work habits." (third grade)

12. "I do not believe that all children should have this training." (third grade)

13. "I have noticed very little evidence of frustration even with low achievors." (third grade)

14. "The girls have better motor coordination than the boys." (third grade)

15. "On a whole, I find my class to be quite immature. They are able to work well at a slow rate of speed." (third grade)

16. "Some evidence of frustration is present but only in a few children." (third grade)

17. "I think this program should be included in all primary groups as part of the reading program." (third grade)

18. "In physical education the experimentals are not as coordinated as the controls. They would rather swing, see-saw, or jump rope than participate in team sports." (third grade)

19. "The training seems to be beneficial to the slow learners, but does not seem to help or hinder the average or above average students." (second grade)

20. "The majority of students in the experimental group are doing better in their subjects than the control group did." (third grade)

Other comments submitted were repetitious of those reported. The comments selected were most indicative of the qualitative aspects. The significance of these reactions will be discussed in the following section.

Part IV

Summary and Implications

A. Quantitative (test results)

In summarization we find that the control and experimental groups showed no significant difference in any of the component parts of reading at the end of three years. (Table I)

A difference must be noted between those children who had perfect comprehension scores (Table II) and those who scored at the lower end of the distribution. (Table III)

These findings would lead to the conclusion that the program was more helpful to the slower youngsters than to the total population in this study.

From these results we might draw the conclusion that this program does not benefit all children to the same degree, but does have a beneficial effect upon those children who are slower in their development.

We have every reason to expect that because of the program the slower learner growth rate will continue, rather than decline, which is so frequently the case with children required to work at a frustration level. The evidence seems to bear out that as a whole the experimental group does not have a higher growth rate but that the lower end of the continuum does.

B. Qualitative (teacher reactions)

In analyzing teacher comments the following implications may be drawn:

1. Much of the program may be used in the kindergarten. The first grade program should not be prolonged for all children, since some children may need only a brief training period. (Reactions 2,3,4,10)

2. Immature or slower learning children seem to have shown the most benefit. (Reactions 3,5,13,19)

3. Some children made faster progress, not to be confused with a higher level of achievement. (Reactions 8,9)

There were differences of opinion concerning group motivation, maturity, and handwriting which are neither substantiated or negated by any of the objective results.

The comments chosen were those most indicative of teacher reactions. It is to be noted that the teachers were not unanimous in their reactions. There seemed to be a more positive reaction on the part of first and second grade teachers. This may be due to exposure to a more formalized orientation to the program.

This study was drawn after the model of the program in Winter Haven, where they have no kindergartens. Thus, the Monmouth County program was started in the first grade, although the schools involved did have kindergartens. There is a general consensus of opinion that the program should begin in the kindergarten and continue into the beginning weeks of first grade according to the needs of the children involved.

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APPENDIX

A. Design for the Monmouth County Pilot Project in Reading.

B. Expenditures for the Project.

C. Preliminary Child Study Report.

D. Monmouth County Child Study Team-Referral Request.

E. Workshop Participants.

F. Testing Program.

G. Test and Observation Sheet.

H. Geometric Figures used in the Perceptual Form Test.

I. Monmouth County Staff.

APPENDIX A

THE MONMOUTH COUNTY PILOT PROJECT IN READING

A demonstration in a method of teaching reading readiness.
A deronstration of an educational services staff in action.

(1962 - 1965)

Initiated by the Staff of the Office of the Monmouth County Superintendent of Schools.

EARL B. GARRISON
County Superintendent

Sponsored by the Boards of Education and the Professional Staffs of:

A.

B.

C.

D.

Background:

During the past decade Americans have expressed an increasing concern about their public schools, if one is to judge by the number of popular books, articles, and newspaper stories that have gained an increasingly wide circulation among the public. The first of these concerns was expressed with the appearance of the popular "Why Johnny Can't Read". The furor it caused has not entirely subsided even now.

The second big concern developed with the advent of space exploration and culminated in the widespread belief that "Ivan" received an education of superior quality to "Johnny". Feature stories in national magazines and national Television shows stressed this point with great emphasis. This concept is still being hotly debated. It will undoubtedly continue.

A far bigger and more legitimate concern is now coming upon the national scene with increasing force. Almost all government, industry, labor, and educational leaders deplore the situation. The popular press refers to it as our "National Disgrace" and yet little if any major inroads have been made on this problem in the last decade. The problem consists of 10,000,000 American youngsters who are now planning to quit or who will plan to quit their formal education prior to graduation in the next ten years. They will be ill prepared academically, socially, psychologically, vocationally or politically to play an effective role in the future. They are quitting with the full knowledge that by their own actions they are consigning themselves to a marginal role in our society. The characteristics of this group are well known to most educators. Millions are non-readers. Their self-concept is one of inadequacy. They have known failure intimately for many years.

In terms of the magnitude of the problem it would be impossible to provide all the remedial help that is indicated to meet the needs of these students with any existing staffs. When one considers the rapid increase in numbers that are anticipated in Monmouth County in the next few years the problem becomes staggering. In recognition of this fact this study proposes to stress the preventive measures that a school may utilize to forestall the negative aspects of failure, poor self-concepts, reading disabilities, and the concomitant areas of social and emotional maladjustment.

Statement of the Problem:

This study has a dual purpose and a dual methodology.

A. The purpose of this study is to attempt to reduce failure in terms of academic achievement and promote sound adjustment to school life in grades one and two. This will be attempted by bringing to bear all the services, skills, and disciplines represented by the county staff as a demonstration of what such a staff can do in support of the classroom teacher.

B. The second purpose of this study is to demonstrate the efficacy of the Winter Haven Program of Reading Readiness. This will be done by having the County Reading Specialist working with the selected teachers in the techniques of this program.

Definition of Terms:

A. Winter Haven Project - to be explained by Mrs. Florence Sutphin

B. Educational Services Staff - to be explained by Dr. Alton Lewis

Duration of Study:

Three years (September 1962 - June 1965.)

Explanation of Symbols:

A_c Control group - All of county staff involved

A_x Experimental group - All of county staff involved

R_c Control of groups - Reading teachers from county involved

R_x Experimental groups- Reading teachers from county involved

Professional Personnel Employed:

A. Teachers and Administrators in local school districts (14 teachers)
(3 administrators)

B. Reading Specialist - County Office
C. Remedial Teachers - County Office
D. School Social Worker - County Office
E. Child Study Specialist - County Office
F. School Psychologist - County Office
G. County Attendance Officer - County Office
H. Special Education Consultant-County Office
I. Consulting Psychiatrist - County Office
J. Research Consultant - State Department

Student Population: (Classes will have to be chosen at random and promoted "en bloc.")

Sept. 1962 - (A_c) 5 classes to be chosen from two schools - Administration of readiness tests to 1st grades - population N=125.

June 1964 - Administer group achievement tests to this group

Sept. 1963 - (A_x) 5 classes to be chosen from two schools-Administration of readiness tests to 1st grades - population N=125. Same teachers teach (A_c) classes as (A_x) classes. One year apart.

June 1965 - Administer group achievement tests to this group

Sept. 1962 - (R_c) 2 classes to be chosen from/school - follow same procedure and schedule as (A_c) classes. N=50

Sept. 1963 - (R_x) 2 classes to be chosen from a school - follow same procedure and schedule as (A_x)classes. N=50.

Materials Needed:

A. Readiness Test (To be mutually agreed upon by schools and staff)
B. Achievement Tests (To be mutally agreed upon by schools and staff)
C. Winter Haven Templates and supplies (To be purchased by State grant)

Chronology of Study:

A. In Sept. 1962 readiness tests will be administered to all first grades in schools X-Y-Z. Groups A_c=125 R_c=50. Total 175.
B. In April 1963 (7) first grade teachers will receive in-service training in the Winter Haven Project.
C. In May 1963 Cooperating first grade teachers, administrator and county staff meet for orientation and prepare plans for explaining program to parents.
D. In Sept. 1963 readiness tests will be administered to all first grades in schools X-Y-Z. Group A_x=125 R_x=50 Total 175.
E. In Sept. 1963. Staff, teachers, administrator meet with parents in group evening meeting to explain program. Based on normal statistical expectancy approximately 20-25 children would need staff help in group A_x=125
F. Based on the findings and observations of the classroom teacher, help for individual students could be requested on a scheduled basis depending on need.
G. In April 1964 The in-service program 2nd grade teachers would begin.
H. In June 1964 selected standardized achievement tests would be administered to (A_c) and (R_c)

I. In June 1965 selected standardized achievement tests would be administered to (A_x) and (R_x).

Evaluation:

Results for evaluation would be compared in the following areas:

1. Standardized achievement tests.
2. Personal-Social Adjustment as indicated by report cards.
3. Anecdoted records of teachers.
4. Clinical observations of educational service staff.
5. Parented conferences or questionnaires.

Limitations of Study:

A. There may be no significant differences in control and experi mental groups.
B. Teachers might change during the progress of the study.
C. Student population will not be consistant for two year period.
D. Further limitations will be apparant as study progresses.

Expected Outcomes:

1. There will be a significant difference between all control and experimental groups.

2. The incidence of failure will be greatly reduced.

3. The teacher will have experienced professional growth in several areas of teaching.

4. The parents will realize the importance of mutual goals between home and school.

5. The education of the "whole child" will be a reality in the educational process.

6. Unexpected as well as overlooked expected outcomes will appear as the study progresses.

APPENDIX B

Expenditures for the Project

Source	Materials	Cost
Winter Haven Lions Research Foundation Inc. P. O. Box 1045 Winter Haven, Florida	130 sets of Templates Training Manuals Test cards	$ 283.55
Stanley Bomar Company Valhalla, New York	Albums Listening Records	217.35
J. L. Hammett Company 2393 Vauxhale Road Union, New Jersey	Pre-Writing Recorder Books	157.20
Howard Haviland Carpenter Millstone, New Jersey	Balance Boards Jump Boards Walk Boards	25.20
Belmar Camera Shop	Films and Slides	11.10
Keystone	Telebinocular Record Forms	2.29
Psychological Corp.	Metropolitan Readiness Tests Gates Primary Reading Tests	85.05
Teachers College Bureau of Publications	Gates Primary Reading Tests	36.00
California Test Bureau	California Achievement Tests	212.84
		$1,030.58
Special Transportation Expenses		200.00
	TOTAL	$1,230.58

APPENDIX C

MONMOUTH COUNTY
DEPARTMENT OF EDUCATION
18 Court Street
Freehold, N. J. 07728

PRELIMINARY CHILD STUDY REPORT BY_____

Name_____Date_____Grade_____School_____

Please complete this form for each pupil in your class. Use the other side of this sheet when necessary. Use phrases instead of sentences and do not repeat the pupil's name below.

I. Attendance and Tardiness

II. Health (Significant factors which may help or hinder the child's development. Include speech, hearing, visual and other defects.)

III. Academic Performance (Indicate achievement in class as related to intelligence and aptitude.)

IV. Significant Environmental Conditions (Moves, siblings, parents, etc.)

V. Behavior (Conduct, personality, etc.)

VI. Teacher's Comments (Include parental attitudes toward the child and school.)

VII. Does this pupil have a problem? (Please check)

A. ☐ 0 - No Problem
☐ 1 - Borderline
☐ 2 - Moderate problem
☐ 3 - Severe problem

B. If 2 or 3 is checked, please indicate area of concern
☐ Health
☐ Learning
☐ Behavior

VIII. Principal's Comments

☐ Referred to C.S.T.
☐ Returned to folder

_____ Date

_____ Principal

APPENDIX D

MONMOUTH COUNTY CHILD STUDY TEAM-REFERRAL REQUEST
18 Court Street
Freehold, New Jersey 07728

Telephone: 462-1940
Ext. 241 to 244

Pupil's Name_____ Age_____ Birth Date_____

Address_____ Telephone #_____

School_____ Grade_____ Date_____

Father_____ Occupation_____

Mother_____ Occupation_____

Marital Status: Living Together_____ Separated_____ Widowed_____

Siblings: Names_____ Ages_____ Sex_____

Referral Initiated By:_____

Reason for Referral:_____

Probable Causes (Teacher's Point of View)_____

Approximate Duration of Problem:_____

School's Efforts to Solve Problem:_____

Parent's Efforts to Solve Problem:_____

Pupil Description:

1. Is general health good?_____
2. Any history of serious illnesses? (List)_____
3. Any physical disability? What?_____
4. Any retention or social promotions?_____
5. Is there a learning disability? Describe_____
6. Is emotional maturity compatible with age?_____
7. Peer group relations? Good_____ Fair_____ Poor_____
8. Behavior problems? Describe_____
9. Do parents recognize a problem?_____
10. What is their attitude?_____

Principal's Comments_____

Teacher's Signature_____
Principal's Signature_____

APPENDIX E

The following people participated in the workshop:

Cooperating First Grade Teachers

Mrs. Harriet Kamen	Clarksburg School
Mrs. Annie Stephens	Clarksburg School
Mrs. Eleanor Bennett	West Belmar School
Mrs. Eileen Redmond	West Belmar School
Mrs. Edythe Forsythe	West Belmar School
Mrs. Wilhelmina Mac Fayden	Allenwood School
Mrs. Marye Ostwald	Allenwood School
Mrs. Marion Shier	Allenwood School
Mrs. Sandra Campbell	Allenwood School
Mrs. Emma C. Schenck	Wall Central School
Mrs. Loretta Mione	Wall Central School
Mrs. Jacqueline Schlamp	Wall Central School

Also Attending:

Dr. C. W. Mc Quarrie, Secretary, Winter Haven Research Foundation	Winter Haven, Florida
Mrs. Ella Strasburger, Remedial Reading Teacher	Fair Haven School
Mrs. Elizabeth Schiller, Reading Specialist	Tinton Falls Schools
Dr. Marion Fox, Ass't. Superintendent	South Plainfield
Miss Edna Hensel, Helping Teacher	Plainfield
Mrs. Lydia Hughes, First Grade Teacher	Upper Freehold Regional District
Mrs. Ruth Poinsett, Reading Teacher	Upper Freehold Regional District
Mrs. Ruth Errickson, First Grade Teacher	Upper Freehold Regional District
Mrs. Grace Taylor, Principal	Wall Central School
Mrs. Velma Phillips, Sixth Grade Teacher	Wall Central School
Mrs. Gretchen Mitchell, Speech Therapist	Wall Township Schools
Mrs. Margaret Finberg, Second Grade Teacher	West Belmar School
Mrs. Mary B. Clayton	Spring Lake Heights
Dr. Alton Lewis	Monmouth County Staff
Mrs. Edla Morton	Monmouth County Staff
Mrs. Margaret Whiting	Monmouth County Staff

APPENDIX F

Testing Program

1. Standardized Tests
   - Metropolitan Readiness
   - Gates Reading Test (Primary)
   - California Achievement Test (Lower Primary)

2. Informal Tests
   - Goodenough Intelligence Test
   - Perceptual Form Test
   - Dominance
   - Perception Story
   - Articulation
   - Posture
   - Motor Maturity

3. Screening Tests
   - Vision - Telebinocular
   - Hearing - Audiometer

APPENDIX G

1963-64

TEST AND OBSERVATION SHEET

Grade School Teacher

Name: Date of Birth:

Perception Form Test

Goodenough Test

Motor Maturity

Vision Test

Hearing Test

Dominance

Hand - Write Ball

Foot - Kick Step

Eye - Hole Tube

Motor Equivalence

Space Organization

Articulation - sheet attached

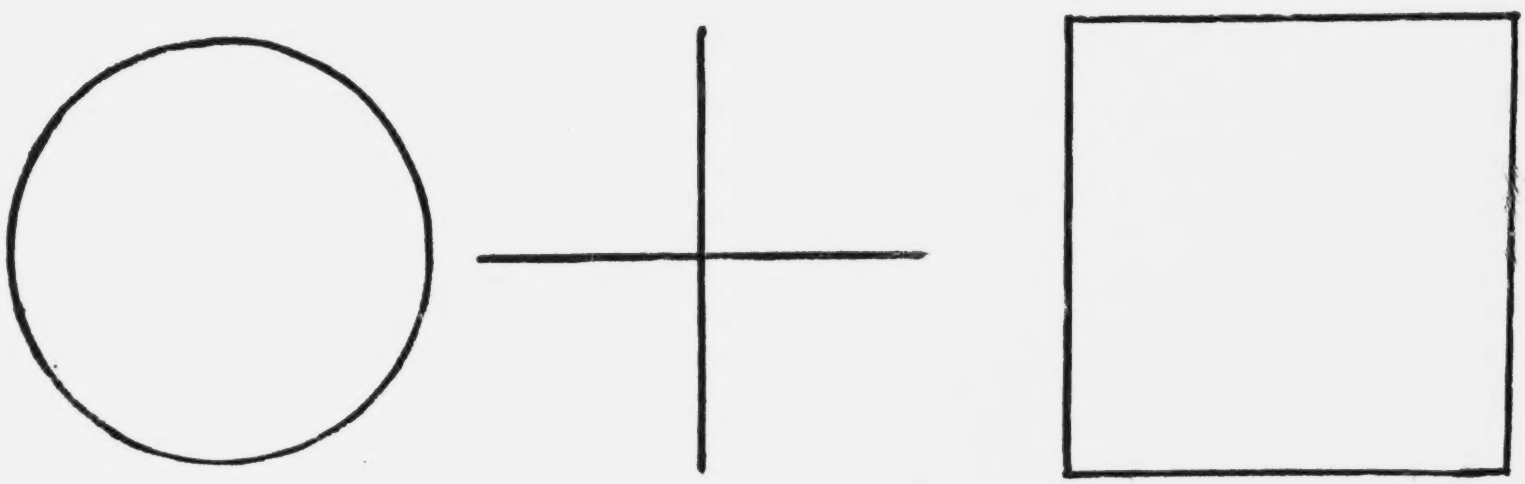
Block Test

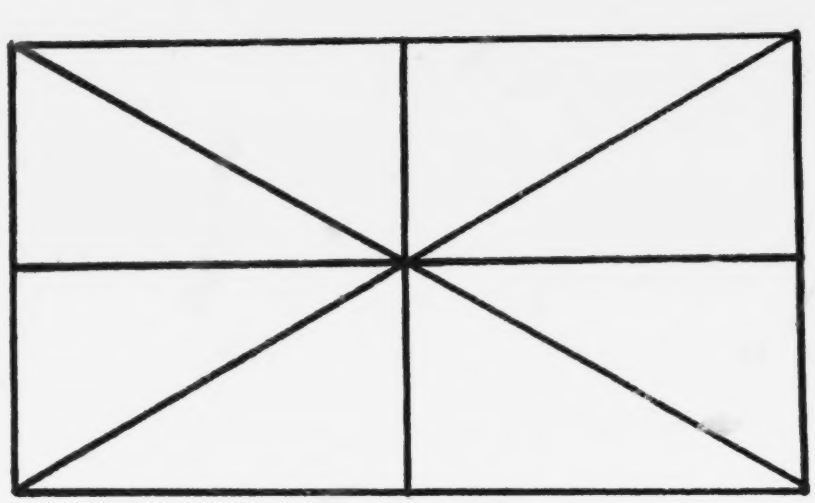
Posture

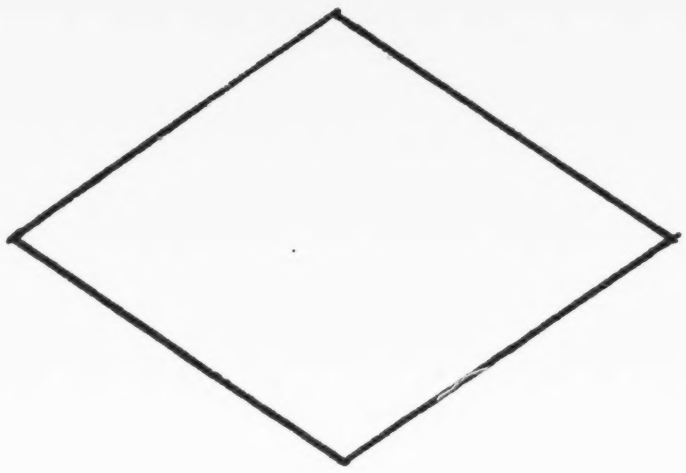
Remarks:

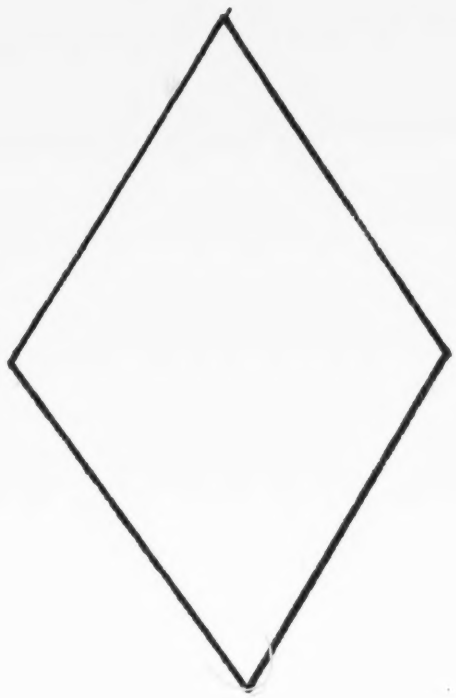
APPENDIX H

Geometric Figures Used in The Perceptual Form Test









APPENDIX I

MONMOUTH COUNTY STAFF

Earl B. Garrison
County Superintendent

Dr. Phillip J. Cardina - Assistant to County Superintendent

Mrs. Eleanor Engelbrecht - Social Worker

Dr. Alton L. Lewis - Psychologist

Mrs. Edla S. Morton - Supervisor of Child Study

Miss Eleanor L. Morton - Attendance Officer

Mrs. Elizabeth Schiller - Helping Teacher

Mrs. Florence Sutphin - Helping Teacher (retired June, 1964)

Miss Marguerite A. Truesdell - Helping Teacher

Miss Jennie Vradenburgh - Helping Teacher

Mrs. Margaret P. Whiting - Remedial Instructor